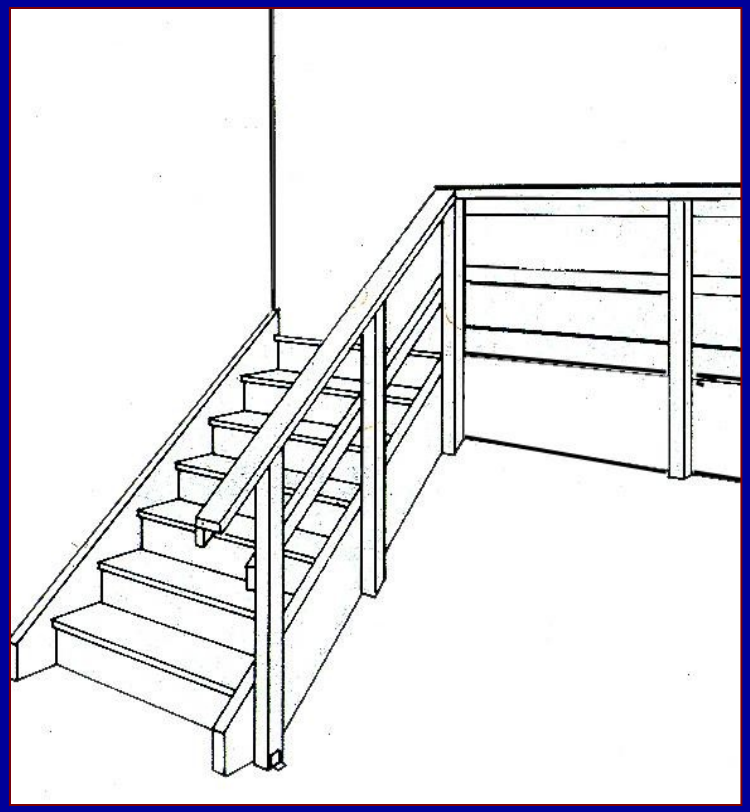
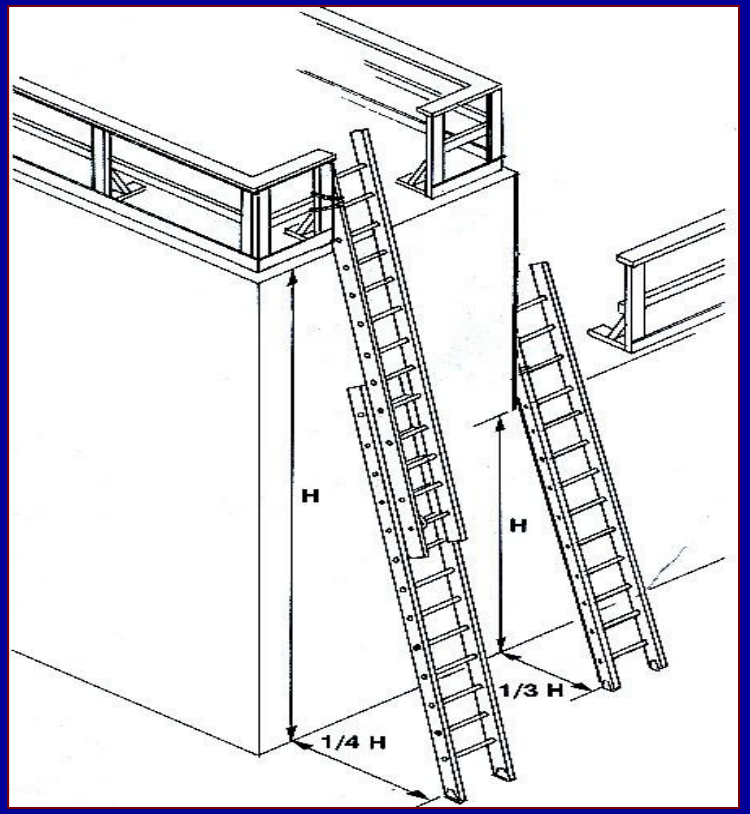
Stairways and Ladders





Hazards

- Stairways and ladders cause many injuries and fatalities among construction workers
- About half the injuries caused by slips, trips and falls from ladders and stairways require time off the job

Improper use of the top rung of a step ladder

Slips, Trips and Falls On Stairways and Ladders

At the end of this training, you should be able to list or describe:

- **Safety guidelines and requirements for stairways**

used at a construction site

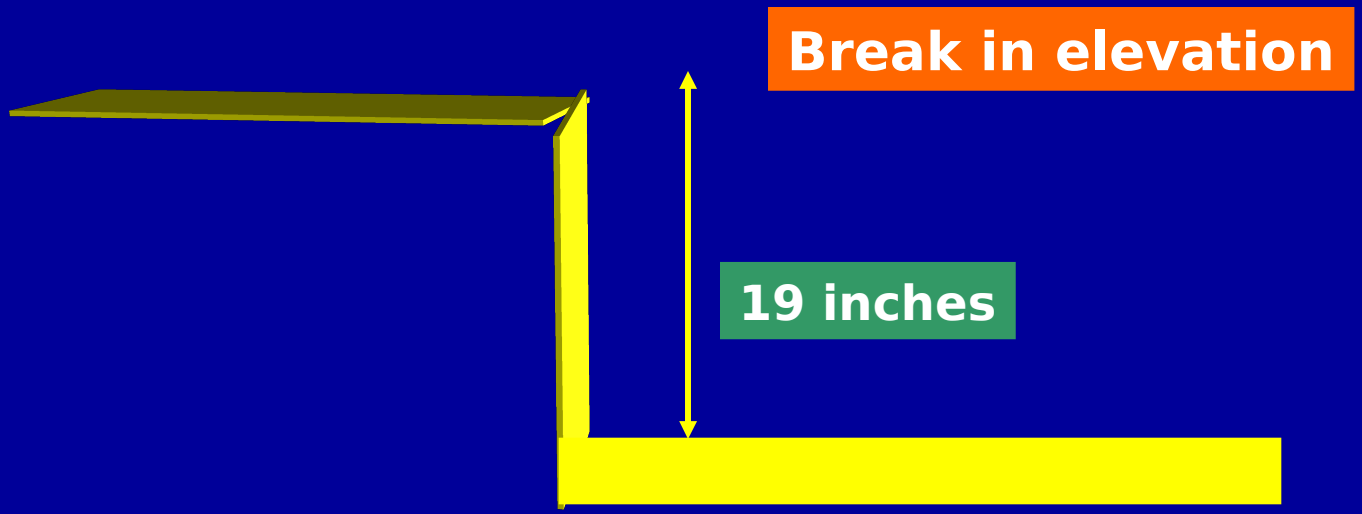
- **Safe practices and requirements for ladders**

used at a construction site

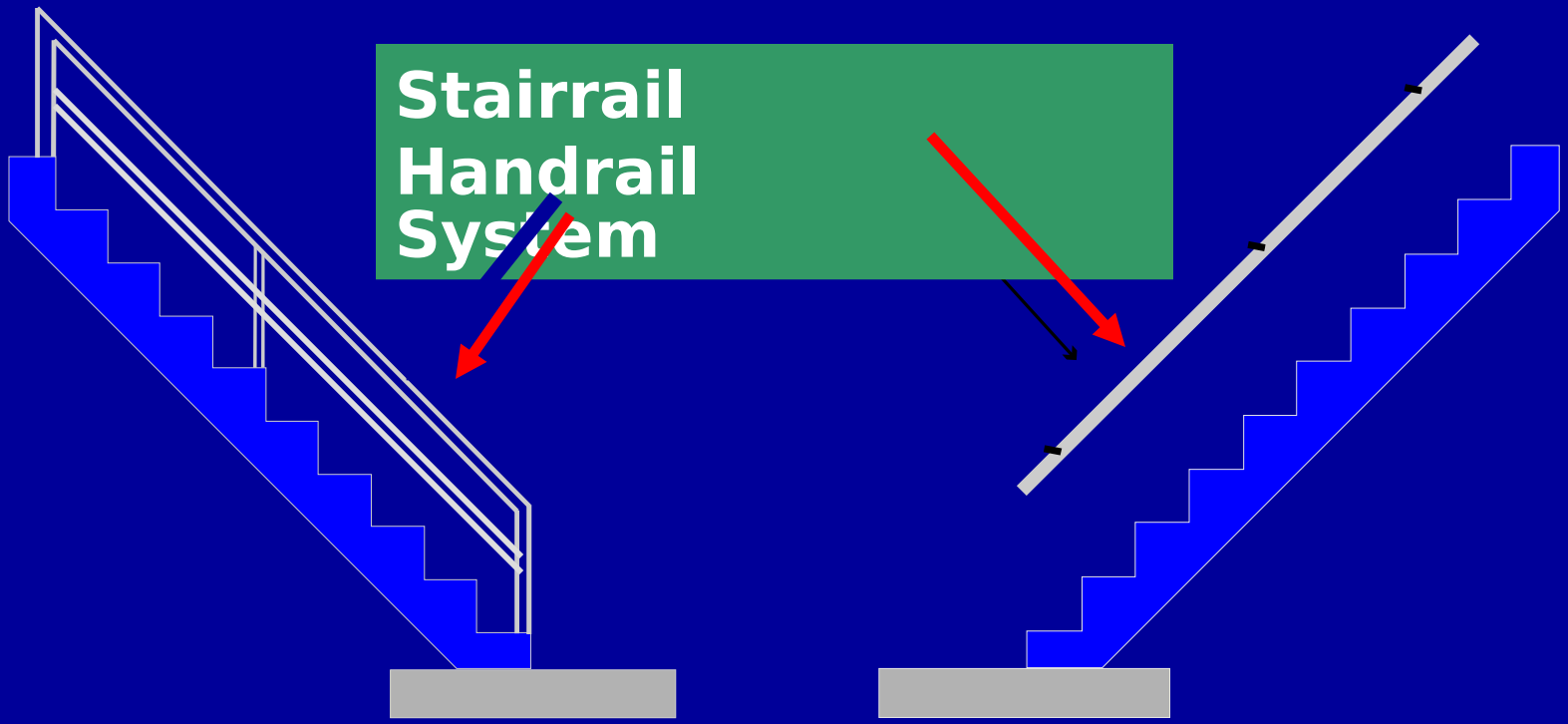
Stairway or Ladder

There must be a stairway or ladder at points of access where there is an elevation break of *19 inches* or more.

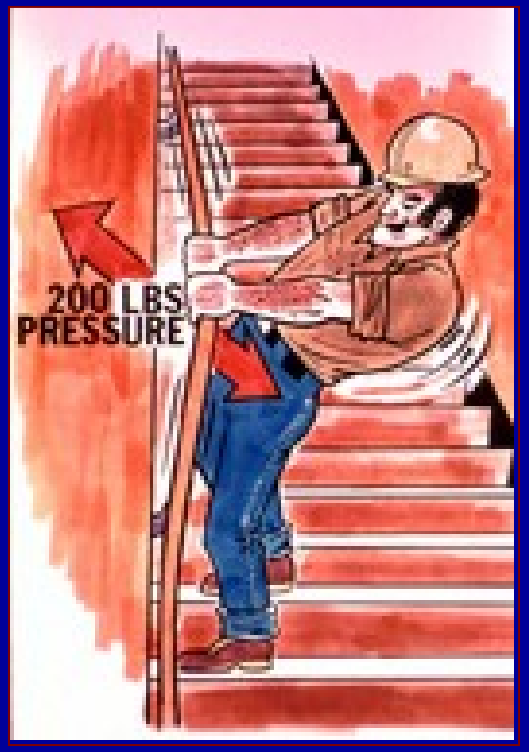
At least one point of access must be kept clear.



Handrail vs. Stairrail



Handrail and Top Rail Strength



Rails must be able to withstand a force of 200 pounds

Hand

Stairways with four or more risers, or higher than 30 inches, must be equipped with at least one handrail.

The stairway to this platform has more than 4 risers
and is not guarded. The platform requires guarding.

Stairrails

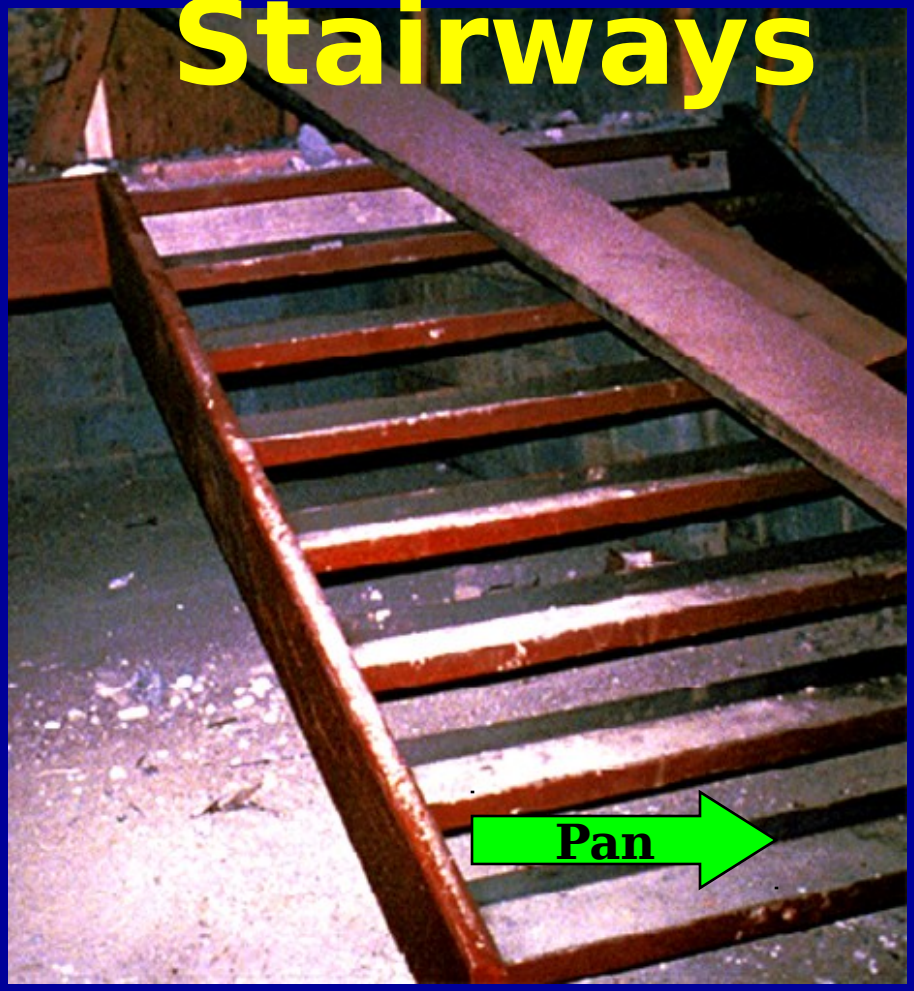
Stairways with four or more risers or more than 30 inches high must have a stairrail along each unprotected side or edge.

Stairs

Install between 30 and 50 degrees.

Must have uniform riser height and tread depth, with less than a 1/4-inch variation.

Temporary Stairways



Only use pan stairs if filled with filler material at least to the top edge of each pan.

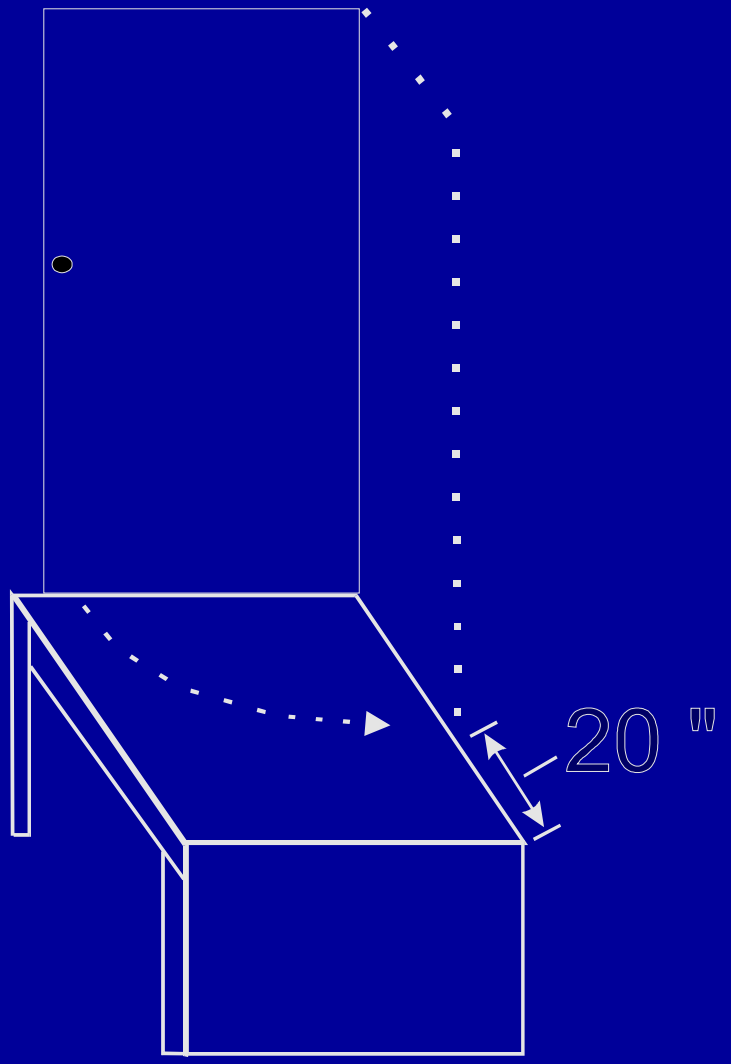
Stairway Landings

Stairways landings must be at least 30 inches deep and 22 inches wide at every 12 feet or less of vertical rise

Unprotected sides of landings must have standard 42 inch guardrail systems

Platforms and Swing Doors

Where doors or gates open directly on a stairway, provide a platform that extends at least 20 inches beyond the swing of the door.



Dangerous Conditions

Fix slippery conditions before using.

Stairway parts must be free of projections which may cause injuries or snag clothing.

Ladders

General Ladder Requiremen

Ladders must be kept in a safe condition

-- DO –

Keep the area around the top and bottom of a ladder clear

Ensure rungs, cleats, and steps are level and uniformly spaced

Ensure rungs are spaced 10 to 14 inches apart

Keep ladders free from slipping hazards

General Ladder Requiremen

Use ladders only for their designed purpose

-- DON'T –

Tie ladders together to make longer sections, unless designed for such use

Use single rail ladders

Load ladders beyond the maximum load for which they were built, nor beyond the manufacturer's rated capacity

Securing Ladders

- Secure ladders to prevent accidental movement due to workplace activity
- Only use ladders on stable and level surfaces, unless secured
- Do not use ladders on slippery surfaces unless secured or provided with slip-resistant feet

Portable Ladders

Inspect before use for cracks, dents, and missing rungs

Design or treat rungs to minimize slipping

Side rails -- at least 11 1/2 inches apart

Must support 4 times the maximum load

Double - Cleated Ladder

Use a double-cleated ladder (with center rail) or 2 or more ladders:

- when ladders are the only way to enter or exit a working area with 25 or more employees
- when a ladder will serve simultaneous two-way traffic

Painting Wood Ladders

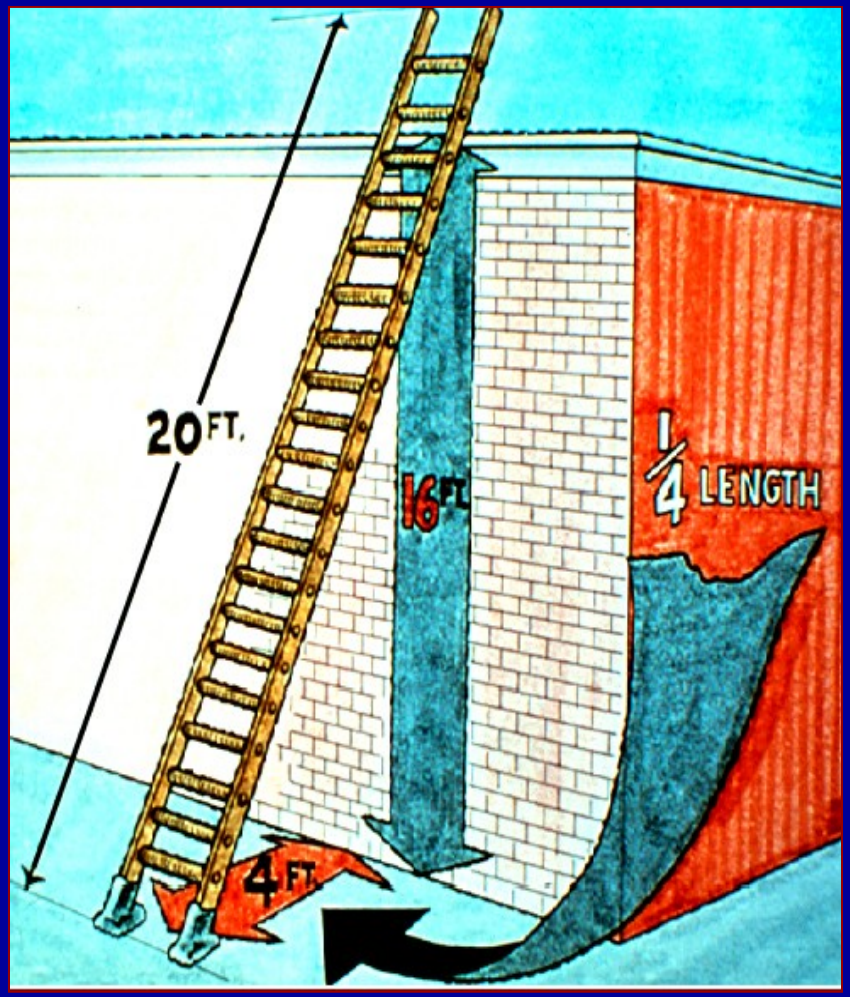
Don’t paint ladders

Don’t use an opaque covering (like varnish) on a wood ladder

Ladder Angle

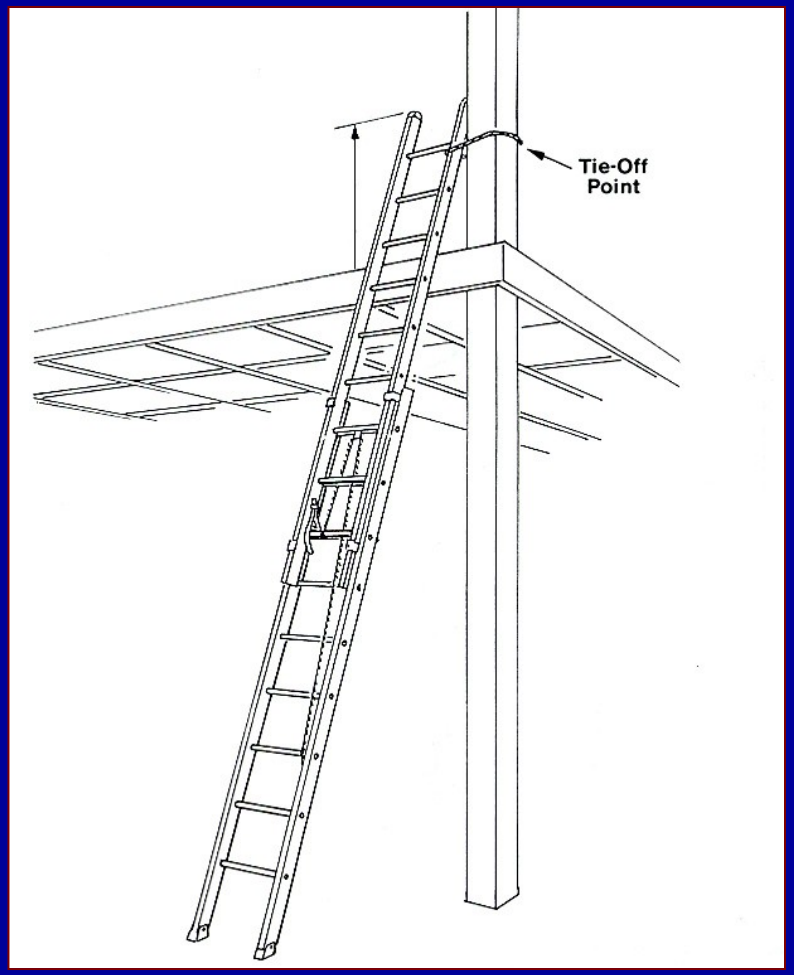
Non-self-supporting ladders:
(which lean against a wall or other support)

- **Position at an angle where the horizontal distance from the top support to the foot of the ladder is 1/4 the working length of the ladder**



Ladder Rail Extension

When using a portable ladder for access to an upper landing surface, the side rails must extend at least 3 feet above the upper landing surface



Tall Fixed Ladder Requirements

Equip a fixed ladder 24 feet or longer with either a:

- **Ladder safety device**
- **Self-retracting lifelines with rest platforms every 150 feet or less**
- **Cage or well, and multiple ladder sections, each section not exceeding 50 feet**

Near Energized Electrical Equipment

If using ladders where the employee or the ladder could contact exposed energized electrical equipment, they must have nonconductive siderails such as wood or fiberglass.

This is an unsafe conditi

Top Step

Do not use the top or top step of a stepladder as a step

Crossbracing

On this ladder the back rungs are designed for use

Don’t use crossbracing on the rear of a stepladder for climbing - unless the ladder is designed for that

Damaged or Defective Ladders

A competent person must inspect ladders for visible defects, like broken or missing rungs

If a defective ladder is found, immediately mark it defective or tag it "Do Not Use”

Withdraw defective ladders from service until repaired

Climbing the Ladder

Face the ladder when going up or down

Use at least one hand to grab the ladder when going up or down

Do not carry any object or load that could cause you to lose balance

Training

A competent person must train each employee in the following areas, as applicable:

- **The nature of fall hazards in the work area**

- **The correct procedures for erecting, maintaining, and disassembling the fall protection systems to be used**

- **The proper construction, use, placement, and care in handling of all stairways and ladders**

- **The maximum intended load-carrying capacities of ladders**

Summary

Key Components for Stairway Safety

- **Treads**
- **Rails**
  - **handrails**
  - **stairrails**
  - **guardrails**
- **Landings and Platforms**

Summary

Key Components for Ladder Safety

- **A competent person must inspect**
- **Use the correct ladder for the job**
- **Use the correct angle, supports, treads, cross braces and rails**
- **Don’t overload**
- **Your employer must train you in proper use of a ladder**